

CLAIMS

1. A fuel cell separator that has a power generating device interposed between the fuel cell separator and another fuel cell separator, the power generating device having an electrolyte film and electrode films,

the fuel cell separator comprising:

a separator main body that includes a gas channel, a manifold that penetrates the separator main body in a fuel cell stacking direction, and a groove that connects the gas channel to the manifold;

a plate member that covers an opening of the groove; and

a gasket that is made of an elastic material, prevents gas leakage from the manifold to the outside, and is formed in a region on the surfaces of the separator main body and the plate member, the region surrounding the manifold, wherein

the plate member has notches or through holes,

when the gasket is being integrally molded with the region on the surface of the plate member containing the notches or the through holes, part of the elastic material fills the notches or the through holes, thereby increasing the fixing strength of the plate member to a predetermined position on the opening of the groove.

2. A fuel cell separator that has a power generating

device interposed between the fuel cell separator and another fuel cell separator, the power generating device having an electrolyte film and electrode films,

the fuel cell separator comprising:

a separator main body that includes a gas channel, a manifold that penetrates the separator main body in a fuel cell stacking direction, and a groove that connects the gas channel to the manifold;

a plate member that covers an opening of the groove; and

a gasket that is made of an elastic material, prevents gas leakage from the manifold to the outside, and is formed in a region on the surfaces of the separator main body and the plate member, the region surrounding the manifold, wherein

the plate member has notches or through holes,

the separator main body has guide protrusions that protrude therefrom,

the guide protrusions have top ends inserted to the notches or the through holes formed in the plate member,

when the gasket is being integrally molded with the region on the surface of the plate member containing the notches or the through holes, part of the elastic material fills gaps between the guide protrusions and the notches or the through holes, thereby increasing the fixing strength of the plate member to a predetermined position on the opening of the groove.

3. A fuel cell separator as claimed in claim 1 or 2, wherein:

the separator main body has concave portions at the locations corresponding to the notches or the through holes formed in the plate member; and

when the gasket is being integrally molded with the region on the surface of the plate member containing the notches or the through holes, part of the elastic material also fills the concave portions, thereby increasing the fixing strength of the plate member to the predetermined position on the opening of the groove.

4. A fuel cell separator that has a power generating device interposed between the fuel cell separator and another fuel cell separator, the power generating device having an electrolyte film and electrode films,

the fuel cell separator comprising:

a separator main body that includes a gas channel, a manifold that penetrates the separator main body in a fuel cell stacking direction, and a groove that connects the gas channel to the manifold;

a plate member that covers an opening of the groove; and

a gasket that is made of an elastic material, prevents gas leakage from the manifold to the outside, and is formed in a region on the surfaces of the separator

main body and the plate member, the region surrounding the manifold, wherein

the plate member has notches or through holes, the separator main body has concave portions at the locations corresponding to the notches or the through holes formed in the plate member,

part of the elastic material that forms the gasket formed on the surface of the plate member, protrudes from the back surface of the plate member through the notches or the through holes, thereby forming convex portions,

the convex portions are engaged with the concave portions formed in the separator main body, thereby securing the plate member to a predetermined position on the opening of the groove in the separator main body.

5. A fuel cell separator as claimed in claim 4, wherein the gasket that is formed on the surface of the separator main body is formed separately from the gasket formed on the surface of the plate member.

6. A solid polymer electrolyte fuel cell comprising the fuel cell separator as claimed in any of claims 1 through 5.